NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

F A C T S H E E T
(pursuant to NAC 445A.874)

Permittee Name: **Atlantic Richfield Company**
Permit Project: **ARCO Station #5310**
Permit Number: **UNEV94216 (Renewal)**

A. Description of Injection

Location: The single network of six (6) injection wells is located at 2728 Las Vegas Boulevard South, Las Vegas, Nevada 89103, in the SE¼ of Section 9, T21S, R61E; MDB&M in Clark County.

Characteristics: This is a permit renewal for continued authorization for the injection of a 3 % hydrogen peroxide solution prepared with dechlorinated water. The solution will continue to be injected at a maximum of 4,000 gallons per month via a continuous slow-inject system.

B. Synopsis

Remedial action at the ARCO Station #5310 is the result of leaking underground storage tanks (LUST). Dissolved product was identified at the site in concentrations exceeding drinking water quality standards and State action levels.

The original Underground Injection Control permit was issued on October 25, 1995. The initial remediation effort entailed the use of a pump and treat system employing an air-stripper unit for treatment. An injection trench was utilized in conjunction with two extraction wells.

This system has had multiple upsets while under the authority of the original permit. The pumped water, which was treated and injected back into the aquifer, was required by the permit to meet Drinking Water standards prior to injection. The system failed in September 1997, April 1998, July 1998 and February 1999 with benzene concentrations in the injectate fluid ranging from 8 ppb to 99 ppb. The Drinking Water Standard for benzene is 5 ppb. Every exceedence was reported by the consultant. Each time the system was shut off and the treatment mechanism repaired/cleaned.

A request was made to modify the permit to allow for a change of remediation strategy which entailed the injection of a dilute solution of hydrogen peroxide. On May 18, 2000 the permit was modified to allow for peroxide injection using a slow-drip injection method.

The large volume requested for injection was authorized on a trial basis and all monitoring parameters were closely observed. The dissolved oxygen concentrations have slowly increased while the groundwater levels have remained nearly constant and demonstrated no evidence of mounding. Because the remediation results appear to be favorable, the injection parameters will not be changed for this permit renewal. If at any time there are indications of any adverse impacts, the permit will be modified to ensure the efficient use of this remediation strategy.

A 3 % hydrogen peroxide solution will continue to be utilized at this site which is generated utilizing dechlorinated water. The solution will be injected directly into the authorized injection wells. The wells authorized for injection include MW-1, MW-2, VE-1, VE-2, VE-3 and IWC. (See Attachment A for Site Map). The hydrogen peroxide is expected to provide a source of oxygen for the indigenous microbes which should enhance the in-situ bioremediation process for the contaminants present at this site.

C. Receiving Water Characteristics:

Groundwater sampling at this site has demonstrated the presence of dissolved petroleum hydrocarbons. Chlorinated solvents have not been detected in either the soil or the groundwater below this site. The contaminant concentrations are in excess of the State and Federal action levels.

The geology encountered during well construction at this site consists of fill material from land surface to approximately 3 feet below land surface. Sand, silt and clay mixtures with gravel extend from approximately 3 feet below land surface to approximately 20 feet below land surface. Depth to ground water is approximately 10 feet and the average local gradient is estimated at 0.02 ft/ft in the east-northeast direction.

The groundwater quality at this site has greatly improved since the initiation of remediation activities. Table 1 demonstrates contamination level changes between 1995/1996 and December 2000.

Table 1

Constituent	Groundwater Concentration (1995 - 1996)	Groundwater Concentration (2000)	Limit
Benzene	4,900 ppb	2,700 ppb	5 ppb (State and Federal Limit)
Toluene	670 ppb	190 ppb	100 ppb (State Limit)
Ethylbenzene	800 ppb	370 ppb	100 ppb (State Limit)
Xylenes (total)	350 ppb	200 ppb	200 ppb (State Limit)
MTBE	Not Sampled	41 ppb	200 ppb (Site Specific Target Level)

D. **Procedures for Public Comment**

Notice of the Division's intent to re-issue a permit authorizing the facility to continue injection into the groundwater of the State of Nevada will be sent to the Las Vegas Review Journal for publication. The notice will be mailed to interested persons on our mailing list (See Attachment B).

Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the publication date of the said public notice. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected state, any affected interstate agency, the regional administrator of EPA Region IX or any interested agency, person or group of persons.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

E. **Proposed Determination**

The Division has made the tentative determination to re-issue the proposed permit for a five year period.

F. **Proposed Limitations and Special Conditions**

PARAMETER	FREQUENCY	LOCATION	LIMITATIONS
Benzene, Toluene, Ethylbenzene, total Xylenes (BTEX), and methyl tertiary butyl ether (MTBE)	Quarterly (Samples shall be taken no sooner than 10 days following injection event)	MW-1, MW-2, MW-3, MW-4 and MW-5	Monitor and Report
Dissolved Oxygen and pH	Quarterly	All site-related wells	Monitor and Report
Iron II	Quarterly	All site-related wells	Monitor and Report

Proposed Limitations and Special Conditions Continued

PARAMETER	FREQUENCY	LOCATION	LIMITATIONS
Hydrogen peroxide: Concentration Volume Date Injected	Each Injection Event	All Affected Injection Wells	3 % Solution with a maximum of 1,000 gallons every week
Groundwater Elevation and Depth to Groundwater	Quarterly	All Site-Related Monitoring Wells	Monitor and Report

G. Rationale for Permit Requirements

The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime.

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